Impact of educational intervention regarding hazards of obesity and its preventive measures among students of Government Arts Colleges, Gujarat, India

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ABSTRACT

Background: The prevalence of obesity has rising trends worldwide in almost every country in all the age groups. The objectives of the present study were to know the prevalence of obesity and overweight among students and to assess knowledge of these students regarding hazards of obesity and its preventive measures before and after educational interventional training.

Methods: The present interventional study was undertaken during September 2016 to December 2017 in randomly selected 3 Government Arts Colleges of Patan, Ahmedabad and Vadodara city of Gujarat state, India. Total 313 students between the age group of 18 to 23 years were examined and body mass index were calculated. The prevalence of overweight and obesity were determined based on the International Obesity Task Force criteria. Single educational training for 45 minutes was given to the students and their post-intervention knowledge for same was assessed after the training. Thus collected data was analyzed using SPSS 17 (trial version).

Results: Overall, the prevalence of obesity and overweight was 9.9% and 14.6% respectively. Baseline knowledge of the students regarding hazards of obesity like hypertension, cancer, myocardial infarction and diabetes mellitus was 19.5%, 18.8%, 17.3% and 16.6% respectively which was significantly increased to 91.4%, 94.2%, 96.2% and 96.8% respectively after the intervention. Baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food/ healthy diet, exercise and meditation was 25.2%, 27.2% and 30.7% respectively which was significantly increased to 96.5%, 99.7% and 98.7% respectively after the intervention.

Conclusions: Single educational session has increased the knowledge regarding hazards of obesity and its preventive measures among college students significantly.

Keywords: Prevalence, Obesity, Non-communicable diseases, College students, Knowledge

INTRODUCTION

The disease profile has been changed in developing countries which catches the attention of medical professionals and policy makers. Epidemics of obesity, cardiovascular disease and diabetes have emerged worldwide. Among these entities, the prevalence of obesity has rising trends worldwide in almost every country in all the age groups and contributes to 2.6 million deaths worldwide every year.¹,² The steep increase has prompted this development to be called an epidemic and because it is worldwide, a pandemic.³

Indian data regarding current trends in early adulthood obesity are emerging. Available studies of Delhi and Chennai has shown the prevalence of 7.4% and 6.2%...
respectively. A study conducted among adolescent school children in South Karnataka has shown the prevalence of overweight and obesity to be 9.9% and 4.8% respectively. In India, increase in ageing population and environmental driven changes in behaviour cause non communicable diseases (NCDs) as major public health problem. The premature morbidity and mortality in most productive phase of life is posing a serious challenge to Indian society and economy. It is estimated that in 2005 NCDs accounted for 53% of all deaths in India. The estimated burden of NCDs in India is 2.4 million Ischemic heart disease, 37.8 million diabetes, 2.4 million cancers and 0.93 million stroke.

The schools and colleges are key locations for educating students about health, hygiene and nutrition, and for putting in place interventions to promote the health of children, adolescents and adults. Many adult health problems e.g., obesity, hypertension have their early origins in early adulthood, because this is the time when lifestyles are formed. By primordial prevention, efforts are directed towards discouraging adults from adopting harmful lifestyles. The main intervention in primordial prevention is through individual and mass education.

With this background in mind, the present study was undertaken to know the prevalence of obesity and overweight among students and to assess knowledge of these students regarding hazards of obesity and its preventive measures before and after educational interventional training.

METHODS

The present study was an interventional study undertaken in 3 Government Arts colleges of Patan, Ahmedabad and Vadodara city of Gujarat during September 2016 to December 2017. All adults between the age group of 18-23 were included after written informed consent. These adults were examined for prevalence of obesity. Height was measured in centimeters (cm) using a stadiometer. Weight was measured in kilograms (kg) using a standardized weighing machine. Body mass index (BMI) was calculated using the formula weight (kg) divided by height in square meters. Waist circumference was measured in centimeters using a non-stretchable fiber measuring tape. The prevalence of overweight and obesity were determined based on the International Obesity Task Force criteria. Before conducting the study approval was obtained from institutional ethical committee for human research. Data safety and confidentiality was also given due consideration. The file containing identity related details was kept password protected and the filled performa were kept in lock with key accessible only to researcher. Baseline knowledge of students regarding obesity was assessed by pre-designed, pre-tested and semi structured questionnaire. Questionnaire was converted in vernacular language for assessment. Single educational interventional training for 45 minutes was given to selected students with lecture, charts, demonstration and discussion. Post-intervention knowledge of students for the same was assessed after training by same questionnaire. Pre and post training assessment was done by scoring method and also mean, standard deviation, Chi-square test were applied. Thus collected data was analyzed using SPSS 17 (trial version).

RESULTS

Out of 313 adults males were 51.9%. Overall, the total number of obese adults identified in whole study population was 31 (9.9 %) and numbers of overweight adults were 36 (14.6%).

The prevalence of obesity was found to be highest among 21 years age group (13.5%). The prevalence of overweight was highest in 23 year age group (25.6%).

Baseline knowledge of the students regarding hazards of obesity like hypertension, cancer, myocardial infarction and diabetes mellitus was 19.5%, 18.8%, 17.3% and 16.6% respectively which was significantly increased to 91.4%, 94.2%, 96.2% and 96.8% respectively after the intervention (Table 1).

Baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food or healthy diet, exercise and meditation was 25.2%, 27.2% and 30.7% respectively which was significantly increased to 96.5%, 99.7 and 98.7% respectively after the intervention (Table 3).

<table>
<thead>
<tr>
<th>Age group (in years)</th>
<th>Obese (No. %)</th>
<th>Overweight (No. %)</th>
<th>Normal (No. %)</th>
<th>Total (No. %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>3 (6.3)</td>
<td>4 (9.8)</td>
<td>41 (85.4)</td>
<td>48 (100)</td>
</tr>
<tr>
<td>19</td>
<td>2 (4.1)</td>
<td>5 (11.9)</td>
<td>42 (85.7)</td>
<td>49 (100)</td>
</tr>
<tr>
<td>20</td>
<td>6 (10.9)</td>
<td>3 (6.5)</td>
<td>46 (83.6)</td>
<td>55 (100)</td>
</tr>
<tr>
<td>21</td>
<td>7 (13.5)</td>
<td>5 (12.5)</td>
<td>40 (76.9)</td>
<td>52 (100)</td>
</tr>
<tr>
<td>22</td>
<td>7 (13.0)</td>
<td>9 (23.7)</td>
<td>38 (70.4)</td>
<td>54 (100)</td>
</tr>
<tr>
<td>23</td>
<td>6 (10.9)</td>
<td>10 (25.6)</td>
<td>39 (70.9)</td>
<td>55 (100)</td>
</tr>
<tr>
<td>Total</td>
<td>31 (9.9)</td>
<td>36 (14.6)</td>
<td>246 (78.6)</td>
<td>313 (100)</td>
</tr>
</tbody>
</table>

Chi square=11.07; Degree of freedom=10; p=0.35.
cise and common to all cardiovascular
knowledge scope and behavioral pliability makes them
predisposing to NCDs development. Hence their
recognized for its vulnerability to adoption of
which was significantly increased to 95.3%, 96.9 and
avoiding junk food or healthy diet, exer
students regarding preventive measure of obesity like
intervention. In Shah et al baseline knowledge of the
respectively which was signif
increased to 91.4%, 94.2%,
Myocardial infarction
Diabetes mellitus

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17.3% and 16.6% respectively which was significantly
increased to 91.4%, 94.2%, 96.2% and 96.8% respectively after the intervention. In Shah et al baseline
knowledge of the students regarding hazards of obesity like hypertension, cancer, heart attack and diabetes
mellitus was 19.7%, 16.1%, 16.5% and 24.5% respectively which was significantly increased to 93.6%,
94.5%, 96.0% and 94.1% respectively after the intervention.1

In our study baseline knowledge of the students regarding preventive measure of obesity like avoiding junk food or
healthy diet, exercise and meditation was 23.6%, 24.4% and 25.9% respectively which was significantly increased to 95.3%,
96.9 and 97.4% respectively after the intervention.1

Early adulthood is an age of transition and clearly
recognized for its vulnerability to adoption of behavior
predisposing to NCDs development. Hence their
knowledge scope and behavioral pliability makes them an
attractive group for intervention. The basic tenet of public
health regarding primary prevention (health promotion
and specific protection) thus acquires contextual value.
As a long term measure for NCDs prevention health
education is a priority in this population. Health education
should reflect in increased awareness resulting in adoption of
healthy behavior. The awareness level of the study
participants regarding NCDs and their risk factors was
unsatisfactory.12

Many studies have been conducted on students for
awareness of NCDs from different parts of India and
abroad. While comparability of these studies could obviously
be limited (awareness has multiple determinants), some may
be quoted for their scope. A study conducted by Shaik et
al among entry year students of a medical university
highlighted that majority of the students (more than 70%) were
aware about stress, high cholesterol, and obesity as the risk
factors of hypertension.13 Goel et al reported that 65.3% and
58.3% senior secondary school students of Chandigarh had
knowledge about hypertension and diabetes, respectively.14 In Lorga et al the lifestyle-related risk
factors which were common to all cardiovascular
diseases were not well known among the students.15 The
present study also highlighted that only one fourth of the
students had knowledge of hazards of obesity.

In Ade et al reported that 62.6% of the students had no
knowledge about the prevention of NCDs.16 Only 127
(37.4%) students felt NCDs are preventable. A school
based study by Taha et al on intermediate and secondary
school male students in Saudi Arable reported that few
(<50%) of the students knew about the beneficial effects
of physical activity in the prevention of heart disease,
hypertension, diabetes mellitus.17 In our study baseline
knowledge of the students regarding preventive measure of
obesity like avoiding junk food or healthy diet, exercise and meditation was 23.6%, 24.4% and 25.9%
respectively which was significantly increased to 95.3%,
96.9 and 97.4% respectively after the intervention.

<table>
<thead>
<tr>
<th>Types of hazards</th>
<th>Pre test</th>
<th>Post test</th>
<th>Chi-square</th>
<th>Significance (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of students (n=313)</td>
<td>%</td>
<td>No. of students (n=313)</td>
<td>%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>61</td>
<td>19.5</td>
<td>286</td>
<td>91.4</td>
</tr>
<tr>
<td>Cancer</td>
<td>59</td>
<td>18.8</td>
<td>295</td>
<td>94.2</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>54</td>
<td>17.3</td>
<td>301</td>
<td>96.2</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>52</td>
<td>16.6</td>
<td>303</td>
<td>96.8</td>
</tr>
</tbody>
</table>

Table 2: Distribution of the students according to knowledge of hazards of obesity before and after training.

<table>
<thead>
<tr>
<th>Preventive measures of obesity</th>
<th>Pre test</th>
<th>Post test</th>
<th>Chi-square</th>
<th>P value (significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of students (n=313)</td>
<td>%</td>
<td>No. of students (n=313)</td>
<td>%</td>
</tr>
<tr>
<td>Avoiding junk food or healthy diet</td>
<td>79</td>
<td>25.2</td>
<td>302</td>
<td>96.5</td>
</tr>
<tr>
<td>Exercise</td>
<td>85</td>
<td>27.2</td>
<td>312</td>
<td>99.7</td>
</tr>
<tr>
<td>Meditation</td>
<td>96</td>
<td>30.7</td>
<td>309</td>
<td>98.7</td>
</tr>
</tbody>
</table>

Table 3: Distribution of the students according to knowledge of preventive measure of obesity.

DISCUSSION

In our study overall prevalence of obesity and overweight
was 9.9% and 14.6% respectively. In Shah et al study
overall prevalence of obesity and overweight was 10.2%
and 10.3% respectively.1 Similar prevalence of obesity
and overweight in students were found in studies done by
Ghone et al, Thaddanee et al, Kapil et al, Kotian et al,
Premnath et al and Kadilkar et al.1,3,7,11

In our study baseline knowledge of the students regarding
hazards of obesity like hypertension, cancer, myocardial
infarction and diabetes mellitus was 19.5%, 18.8%,
17.3% and 16.6% respectively which was significantly
increased to 91.4%, 94.2%, 96.2% and 96.8% respectively after the intervention. In Shah et al baseline
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regarding preventive measure of obesity like avoiding junk food or healthy diet, exercise and meditation was 23.6%,
24.4% and 25.9% respectively which was significantly increased to 95.3%,
96.9 and 97.4% respectively after the intervention.1

Early adulthood is an age of transition and clearly
recognized for its vulnerability to adoption of behavior
predisposing to NCDs development. Hence their
knowledge scope and behavioral pliability makes them an
There is definitely a need for well-planned, large-scale studies using standardized methodologies to estimate the prevalence and determinants of obesity and overweight among college students.

CONCLUSION

High prevalence of obesity and overweight in students of colleges indicate an urgent attention to increase awareness via education and motivation of all stakeholders. Single educational session has increased the knowledge regarding hazards of obesity and its preventive measures among college students significantly. All college students should be discouraged from adopting harmful lifestyles which cause non-communicable diseases such as diabetes and cardiovascular diseases.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES
